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THE LAMARCK MANUSCRIPT IN HARVARD

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LAMARCK manuscripts are exceedingly rare. For until the last score years Lamarck was ranked as a discredited author, and his writings were thrown aside. Even the autograph collector, to whose nets almost everything is a fish, has hardly taken the pains to preserve his bare signature. The Harvard manuscript, accordingly, is an important document, especially in these days of Lamarckian revival. It is holographic, antedating, therefore, 1818-20, the years when Lamarck's eyesight was lost. It forms together a series of essays and drafts of later work, all in all about ninety leaves, of which fifty have writing on both sides. They are brought together in a volume with marbled sides and morocco back with the legend, "Manuscrits de Lamarek," the binding dating 1830-40. As a frontispiece there is inserted the Langlumé lithograph of Alexis Noël's portrait of Lamarck (1823). Following this is a table of contents, probably in the hand of the early owner of the manuscript. It reads:

Manuscrits | de | J. B. P. A. de Lamarek | Membre de l'institut de
france, Professeur-admi- | nistrateur du Museum d'histoire naturelle, ect.
contenant|.

1° Système de Gall.....	20	feuilles
2° Idée et Imagination	19	"
3° Apperçu analytique de connaissances humaines.	11	"

4° Questions Zoologiques.....	9	“
5° Histoire naturelle	3	
6° Planches préparées pour les figures des genres qui feront partie de la 2° édition des animaux sans vertèbres.....	19	feuilles
Total	81	feuilles

From this it will be noted that the papers were collected before 1835, the year of the appearance of the second edi-



Jean Baptiste, Pierre-Antoine Monet de Lamarck.

tion of the “Animaux sans Vertèbres,” for it is stated that the drawings *will form* part of the second edition, not that they did form part of it.

This manuscript was presented to Harvard University in 1896 by Professor Alexander Agassiz, who appears to have discovered it in Paris. Its earlier provenance is unknown. My attention was called to it by my friend,

questions Zoologiques
dont la solution est de premiere importance.

- 1^{re} question : les animaux et les végétaux étant des corps vivans, ces 2 sortes de corps se confondent-ils par un point commun des soins qu'ils forment ; ou existe-t-il quelque caractere exclusif et tranché qui distingue nettement les premiers des seconds ?
- 2^e question : peut-on mettre en évidence, par la citation de faits décisifs, que tous les animaux connus jouissent du sentiment ; ou qu'ils n'y a qu'une partie d'entr'eux qui soient doués de cette faculté ?
- 3^e question : peut-on prouver par des faits pareillement décisifs, que tous les animaux connus possèdent la faculté d'avoir des idées et de former cette détermination par préméditation qui fait agir volontairement, et permet de varier les actions ; ou qu'il n'y a qu'une partie des animaux qui jouissent de cette faculté ?
- 4^e question : y a-t-il quelque faculté animale qui ne soit pas un phénomène d'organisation et qui soit indépendante de tout système d'organes quelconque ; ou toute faculté qui n'est pas commune à tous les animaux, ne dépend-elle pas d'un système particulier d'organes qui y donne lieu ?
- 5^e question : tous les animaux connus possèdent-ils la totalité des systèmes particuliers d'organes qui composent l'organisation très compliquée des animaux les plus parfaits ; ou, quoique ces systèmes d'organes soient essentiels à la vie dans les animaux qui les possèdent, la vie dans d'autres animaux ne peut-elle pas exister

Dr. C. R. Eastman, who was generously instrumental in placing it in my hands. To him, therefore, and to Professor Samuel Henshaw, curator of the Museum of Comparative Zoology, my thanks are due for the privilege of examining it.

In further detail, and in the matter of its published or unpublished parts:

The *Système de Gall* is largely medical: it deals with the brain, its anatomy, comparative anatomy, physiology, pathology—the last in some detail as in idiocy, cretinism, suicidal mania, hereditary insanity. I cannot find that it has been published.

The second essay, *Idée et Imagination*, has certainly been published. It bears the note in Lamarck's hand, "*Articles du diction*," and is signed by compositors. Dr. Eastman suggests that it occurs in *Nouv. Dict. Hist. Nat.* of Deterville, 1818, a work I have not been able to consult. The writing indicates an earlier date than the remaining leaves.

The third portion, *Apperçu analytique des connaissances humaines, avec des divisions et des reflexions tendant à montrer leur degré de Certitude, leurs Sources, leurs Branches principales*, is probably the outline of his extended work (362 pp.) on the same subject published in 1820: it is entirely in his own hand and probably dates not later than 1818 (the year in which his eyes failed him).

Of the fourth manuscript, *Questions Zoologiques*, the first section is substantially as follows:

"Zoological questions whose solution is of first importance.

"*First Question*.—Animals and plants being living bodies (corps), do these two kinds of organisms become confused (se confondent) at a common point of the series which they form; or does there exist some exclusive and trenchant character, which distinguishes sharply the first from the second?

"*Second Question*.—Can one show by the citation of decisive facts, that all animals known are endowed with sensation;¹ or that there are only certain of them which are endowed with this faculty?

¹ Lamarck uses the word "sentiment." From several contexts, however, one concludes that more than "sensation" is intended, and that "con-

"*Third Question.*—Can one prove by facts equally decisive that all animals known possess the faculty of having ideas and of determining them by premeditation,—a premeditation which is formed *voluntarily* and which permits the actions to be varied; or are there only certain animals which enjoy this faculty?

"*Fourth Question.*—Is there some faculty in animals which is not a phenomenon of organization and which is independent of all systems of organs whatever; or does not every faculty which is not common to all animals depend for its origin upon a particular system of organs.

"*Fifth Question.*—Do all animals known possess the totality of the particular systems of organs which make up the very complicated organization of the most perfect animals; or, however essential are these systems of organs to the life in the animals which possess them, can not life in other animals exist without them?

"*Sixth Question.*—Is there known a single organ which is essential to animal life (in general) whatever be its function in the particular organism of which it forms a part; or must we not assume that life, whether of plant or of animal, needs no particular organ whatever, to enable it to exist in certain organisms.

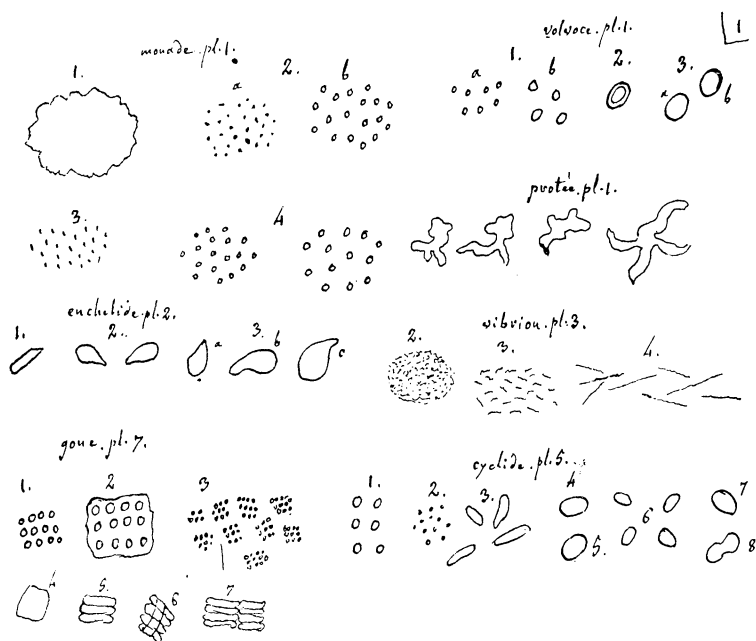
"*Seventh Question.*—Cannot *sensation* (*sentiment*) and *irritability* be regarded as one and the same organic phenomenon and can it not be proved by facts that every portion of an animal which is endowed with *irritability* is also endowed with *sensation*; or is not *irritability* with which all animals are endowed, whether in all their parts or in certain of them only, an independent phenomenon and distinct from the *sensation* enjoyed by many animals?

"*Eighth Question.*—Can it be established clearly that the facts of movement in the case of so-called *sensitive* plants demonstrate in these plants either *sensation* or *irritability*; or that these facts have no relationship whatever with those which demonstrate in animals on the one hand *sensation* and on the other *irritability*?

"*Ninth Question.*—The nerves alone are the organs of *sensation* since consciousness" might often be the better rendering. Thus in the eighth question referring to sensitive plants he distinguishes sharply "sentiment" from "irritabilité." The latter gives the idea of unconscious reflex to stimulus, and the former then becomes antithetic, *i. e.*, conscious. The literal text in this question reads "peut on établir d'une manière évidente, que les faits de mouvement relative aux plantes dites *sensitives*, constatent dans ces plantes soit le *sentiment*, soit l'*irritabilité*; ou que ces faits n'ont aucun rapport avec ceux qui attestent les uns le *sentiment*, les autres l'*irritabilité* des animaux?" Again, contrasting questions second and third, it is clear that "sentiment" in the second question is distinguished from a higher form of consciousness, which is equivalent to reason (or intelligence). In general we assume that the phrase "avoir le sentiment" implies consciousness.

the faculty of sensation is lost in a part (of an animal) in which the nerves supplying it have been destroyed; now the question is whether every nerve produces a sensation when it is affected, and whether the nerves which bring the muscles in action as well as those which furnish the forces of action to the organs produce sensation, like the rest; or whether there are not particular and special nerves for the production of sensation, while the others function some for *muscular excitation*, the others only for putting different organs in a condition to execute their functions?

"Tenth Question.—Is there some constant and peculiar sign which will make us understand that a being differing from ourselves ex-



Lamarck's Pen-drawings of Microorganisms (MS. p. 145).

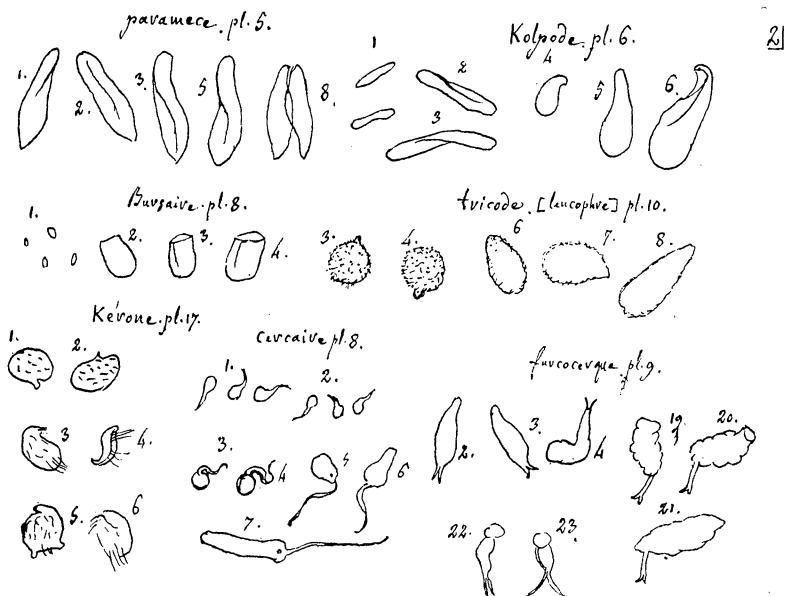
periences a sensation when it is stimulated (*affecté*), and can one always accept as a test the similar movement which it then executes; or, however in general an animal gives no other sign of a sensation produced than by the movements of its parts, can not these movements often deceive us and be due only to the *irritability* excited in the parts of the animal?

(I know no certain sign of a sensation produced save a *cry* evoked by pain: but all animals are not able to give such a sign and those which have the power do not always use it.)

"SUPPLEMENTAL QUESTION:

"Eleventh Question.—If each particular system of organs gives rise to a particular faculty, can this faculty be found again in an animal in which the system of organs which produces it no longer exists; or can not this same faculty be regarded as destroyed when the system of organs which has given rise to it ceased to exist?"

These questions date from the period 1810–18, with the probability that they belong nearer the later than the earlier date, for in his "Philosophie Zoologique" (1809)

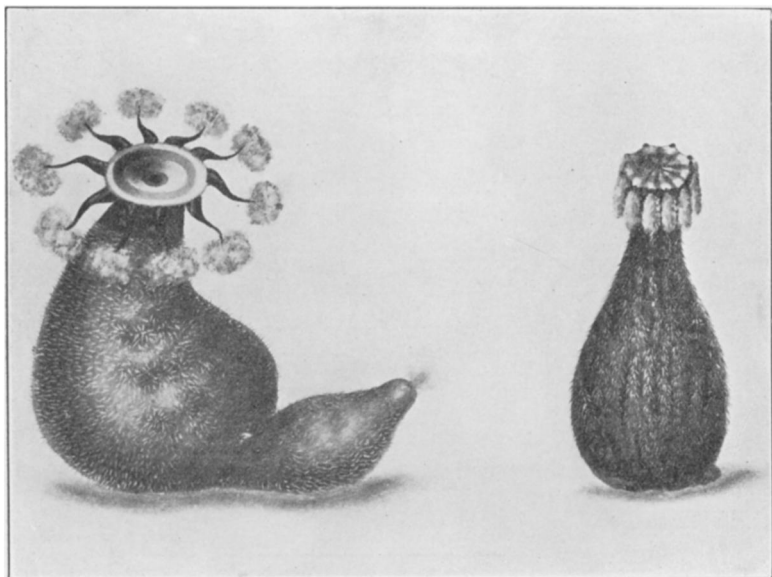


Lamarck's Pen-drawings of Microorganisms (MS. p. 147).

his views were by no means as advanced. He then spoke of the essential differences which distinguish plants and animals, and did not query their common origin, and did not seek a trenchant character which would serve to distinguish them. Moreover, he did not then query the possible kinship of sensation and irritability in sensitive plants and in animals, for at that time he had seen no reason to deny the elastic-fluid explanation for the sensitive movements of plants. Altogether these questions are of considerable interest in the study of the develop-

ment of Lamarck's views. They had, however, hardly reached the level of his Introduction to the second edition of his "Animaux sans Vertèbres" (1835). But we can regard them as sure steps in that direction, for similar ideas are here and there found in the Introduction. Indeed the second part of these Questions Zoologiques, MS. pp. 117-130, undoubtedly served as a first draft of this. Thus the present p. 117 is equivalent to p. 17 of the Introduction, and one can identify nearly all of the remaining leaves.

The fifth portion is headed "Histoire naturelle," and deals with its scope. It appears to have been a draft of a portion of the second edition of the "Animaux sans Vertèbres," for it is captioned "*Chap. 4. Connaissance des Corps organisés vivans que s'observent à la surface de notre globe et dans les eaux liquides,*" but these lines have been crossed out. The same ideas occur in the published work but in different form, so it is perhaps unnecessary to append here the entire section. The last page will give an idea of its tenor:



A Color-drawing of a Holothurian.

“Living bodies and inorganic bodies are the materials of natural history. They compose together the mass of the terrestrial globe, but they occur in very different proportions, for the first form a portion exceedingly small, while the second constitute almost the totality.

“Yet the bodies which are possessed of life are innumerable in the diversity of their species, and those, on the other hand, which lack it, exhibit in proportion only a small number. Indeed, we know hardly more than six or seven hundred species of minerals, while the number of species of living bodies can not be estimated as less than 100,000.²

“These considerations are not lacking in interest, provoking our reflections, and each one of them presents us a fact, an item of knowledge with which we have to reckon. In a word these singular bodies which possess life, which are so diversified, are yet the constituents of but a very small portion of the globe which man inhabits.”

The final pages of the manuscript contain the following drawings:

Plate I, monads, volvoce, enchele, proté, vibron, goue, cyclida.

Plate II, paramèce, kolpode, Bursaire, tricode [leucophre], Kérone, cercaire, furcocerque.

Plate III, Ratule, tricocerque, vaginicole, folliculina, Brachion, furculaire.

Plate IV, urcéolaire, vorticelle, tubiculaire.

The remaining pages include the “animal of *lepas balanus*,” with parts named, “*millipora gelatinosa*,” a color sketch, a number of jelly fishes, including “*dianée triedre*,” “*orythie verte*,” “*orthie hexaneme*,” “*dianée proboscidaire*,” “*dianée dineme*”; a number of nudibranchs, pteropods, and a beautifully colored drawing of a living holothurian.

² A generous estimate for that period—a number now several times exceeded within the insecta.